

AMENDED CLAIMS

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new claims 47 to 70 added (5 pages)]

47. A method for metering and delivering seeds for planting in a seedbed including the steps of:
- providing a feed system feeding seed from a seed reservoir to a vacuum metering means having a plurality of spaced apart apertures on a moving metering surface thereof and a vacuum generator arranged to draw air through said apertures so that seeds fed to said metering means are attracted to and held at said apertures and wherein the metering is achieved by the size and number of apertures and the control of speed of the moving metering surface;
- 5 at a release point releasing from said apertures seeds held at said apertures and carried to said release point; and
- 10 delivering seeds released at said release point to said seedbed by means of a delivery system,
- wherein said feed system -
- (a) feeds seed at a controlled rate to said metering means; and
- 15 (b) provides control of the speed of seeds adjacent said moving metering surface to allow effective metering.
48. A method according to claim 47 wherein seeds are released from said reservoir at said controlled rate and subjected to an acceleration by an acceleration means of a velocity control means extending between said reservoir and said metering means.
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49. A method according to claim 48 wherein said velocity control means includes a secondary braking or acceleration means for adjusting the speed of seeds from the acceleration means and arriving at said metering means.
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50. A method according to claim 49 wherein the speed of seeds adjacent to said surface is controlled to be at least approximately the same as the speed of the metering surface.
- 30 51. A method according to claim 48 wherein the acceleration means is a gravitational

accelerator including a predetermined length substantially vertical flow path from the seed reservoir.

52. A method according to claim 51 wherein said velocity control means includes a secondary braking or acceleration means formed by conveyor belt positioned at the end of the gravitational accelerator and positionable adjacent the moving metering surface for adjusting the speed of seeds from the acceleration means and arriving at said metering means.
- 10 53. A method according to claim 47 wherein:
- (a) said metering surface of said metering means is a rotating convex cylindrical surface; and
 - (b) the feed system controls the speed of seeds adjacent to said metering surface to be at least approximately the same as the speed of the surface.
- 15 54. A method according to claim 53 wherein seed arriving at said surface of said metering means is held adjacent to said metering surface over a circumferential portion thereof and wherein seeds held at said apertures are carried past said portion to said release point.
- 20 55. A method according to claim 54 wherein said release point is positioned circumferentially past a point at which seeds not held at said apertures leave said surface, so that seeds held at said apertures and unselected seeds not so held are separated into metered and unselected seed streams respectively.
- 25 56. A method according to claim 55 including the step of capturing said unselected seed stream and transporting seed thus captured to said seed reservoir.
- 30 57. A method according to claim 47 including the step of controlling the speed of discharge of seeds at exit from said delivery system.

58. A method according to claim 57 including the step of monitoring seed speeds at exit from said delivery system by a sensor and controlling said exit speed responsively to an output of said sensor.

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59. Seeding apparatus for metering and delivering seeds for planting in a seedbed, including:

a seed reservoir;

vacuum metering means having a row of spaced apart apertures on a

10 movable metering surface thereof;

vacuum generating means arranged to draw air inwardly through said apertures whereby to attract seeds to said apertures and thereafter hold seeds at said apertures;

means for moving said metering surface of said metering means;

15 wherein the metering means achieves metering by the size and number of the apertures on the moving metering surface and the control of the speed of the moving metering surface;

20 the seeding apparatus further including a feed system for transporting seed from said seed reservoir to said metering means and providing said seed at said moving metering surface so that seeds are attracted to and held at said apertures;

at a release point release means for releasing seeds held at each said aperture of said moving metering surface and carried to said release point; and

25 delivery means for receiving seeds released by said release means and delivering said seeds to said seedbed,

wherein said feed system -

- (a) feeds seed at a controlled rate to said metering means; and
- (b) provides control of the speed of seeds adjacent said moving metering surface to allow effective metering.

30 60. Apparatus according to claim 60 including a velocity control means having an

acceleration means wherein seeds are released from said reservoir at said controlled rate and subjected to an acceleration by the acceleration means between said reservoir and said metering means.

- 5 61. Apparatus according to claim 61 wherein said velocity control means includes a secondary braking or acceleration means for adjusting the speed of seeds from the acceleration means and arriving at said metering means.
- 10 62. Apparatus according to claim 61 wherein the secondary braking or acceleration means is able to adjust the speed of seeds adjacent to said metering surface to be at least approximately the same as the speed of the metering surface.
- 15 63. Apparatus according to claim 59 wherein:
- (a) said metering surface of said metering means is a rotating convex cylindrical surface; and
- (b) the speed of seeds adjacent to said surface is controlled to be at least approximately the same as the speed of the surface.
- 20 64. Apparatus according to claim 63 wherein said velocity control means ends adjacent the metering surface so that seed arriving at said metering surface is held adjacent to said metering surface over a circumferential portion thereof and wherein seeds held at said apertures are carried past said portion to said release point.
- 25 65. Apparatus according to claim 63 wherein said velocity control means includes a component having a surface between which and said metering surface seed is carried in said portion whereby seed is held adjacent to said surface of said metering means.
- 30 66. Apparatus according to claim 65 wherein said component of said velocity control

means is one or more of a roller, a belt and a flap.

67. Apparatus according to claim 59 wherein said release point is positioned circumferentially past a point at which seeds not held at said apertures leave said surface, so that seeds held at said apertures and unselected seeds not so held are separated into metered and unselected seed streams respectively.
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68. Apparatus according to claim 67 including recycling means adapted to capture said unselected seed stream and to transport seed thus captured to said seed reservoir.
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69. Apparatus according to claim 59 including means for controlling the speed of discharge of seeds at exit from said delivery system.
- 15 70. Apparatus according to claim 69 including a sensor adapted to measure the speed of discharge of seeds at exit from said delivery system and wherein said exit speed is controlled responsively to an output of said sensor.

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